DETAILED ACTION

Status of Application, Amendments, And/Or Claims

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office Action has been withdrawn pursuant to 37 CFR 1.114.

The Information Disclosure Statement (IDS) filed 11 June 2009 has been entered. The Declaration under 37 CFR 1.132 of Dr. Brigitte Assouline and Applicant's remarks submitted on 6 April 2009 are acknowledged. Applicant's amendment of the claims filed 6 April 2009 has been entered.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given on 11 June 2009 in a telephone interview with Attorney Frank C. Eisenschenk, also in an email communication which attaches the proposed claim amendment for the Examiner's Amendment (see attachment in the PTO-413 (interview summary) of this office action).

Please amend the claims as follows:

58. The composition of matter according to claim 57, wherein said IL-7 conformer comprises SEQ ID NO: 2.

60. The composition of matter according to claim 59, wherein said IL-7 conformer comprises amino acids 26-177 of SEQ ID NO: 13.

69. The pharmaceutical composition according to claim 68, wherein the pharmaceutically acceptable carrier is selected from the group consisting of sucrose, trehalose and an amino acid.

75. The pharmaceutical composition according to claim 68, further comprising an immuno-stimulating agent selected from a hematopoietic cell growth factor, a cytokine, an antigen, an adjuvant, or a combination thereof.

76. The pharmaceutical composition according to claim 75, wherein said hematopoietic cell growth factor is selected from the group consisting of Stem Cell Factor (SCF), the soluble form of the SCF, G-CSF, GM-CSF, Flt-3 ligand, IL-15 and IL-2.

77. The pharmaceutical composition according to claim 75, wherein the cytokine is selected from the group consisting of γ interferon, IL-2, IL-12, RANTES, B7-1, MIP-2 and MIP-1α.

78. The pharmaceutical composition according to claim 75, wherein said antigen is selected from the group consisting of a synthetic or natural peptide, a recombinant protein, a killed, inactivated or attenuated pathogen product, a lipid, a portion thereof and a combination thereof.

79. The pharmaceutical composition according to claim 78, wherein said antigen is selected from the group consisting of antigens derived from HIV, Varicella Zoster virus, Influenza virus, Epstein Barr virus, type I or 2 Herpes Simplex virus, human cytomegalovirus, Dengue virus, Hepatitis A, B, C or E virus, Respiratory Syncytium virus, human papilloma virus, mycobacterium tuberculosis, Toxoplasma and Chlamydia.

85. The pharmaceutical composition according to claim 68, wherein the effective amount of said IL-7 conformer is between about 3 to 300 μg/kg/day.

94. A method of producing an IL-7 drug substance as defined in claim 56, the method comprising:

a) providing a sample comprising IL-7 polypeptides,

b) purifying an IL-7 conformer which comprises the following three disulfide bridges: Cys: 1-4 (Cys2- Cys92); 2-5 (Cys34- Cys129) and 3-6 (Cys47- Cys141) to produce an IL-7 drug substance, and

c) measuring or quantifying, in the drug substance, said IL-7 conformer.

95. The method according to claim 94, wherein said sample is obtained from a culture of recombinant prokaryotic or eukaryotic host cells producing IL-7 polypeptides.

96. The method according to claim 95, wherein said sample is or derives from a culture of prokaryotic host cells encoding an IL-7 polypeptide and further wherein the method further comprises, prior to step b):

i) treating said sample to cause a complete denaturation of said IL-7 polypeptides,

ii) purifying the denatured polypeptide obtained in step i) and

iii) refolding the polypeptides.

99. The method according to claim 98, wherein said hydrophobic chromatography is implemented using HIC butyl.

100. The method according to claim 96, wherein step ii) is carried out at a pH comprised between 6 and 9.

101. The method according to claim 94, wherein said purification step b) comprises the performance of an affinity chromatography.

104. The method according to claim 94, wherein the IL-7 conformer is characterized in the drug substance by Mass spectrometry, infra-red spectroscopy, NMR, by determining circular dichroism, by measuring the affinity toward a specific monoclonal antibody raised against said IL-7 conformer, or heparin affinity chromatography, and measured or quantified by ELISA, bioassay or the affinity of said IL-7 conformer for IL-7 receptor or a method of protein quantification.

111. The composition of matter according to claim 56, wherein said IL-7 conformer is a human IL-7 conformer that is not immunogenic in humans.

112. The composition of matter according to claim 56, wherein said IL-7 conformer is a simian IL-7 conformer that is not immunogenic in non-human primates.

113. The pharmaceutical composition according to claim 68, wherein said IL-7 conformer is a human IL-7 conformer that is not immunogenic in humans.

114. The pharmaceutical composition according to claim 68, wherein said IL-7 conformer is a simian IL-7 conformer that is not immunogenic in non-human primates.

Please cancel claims 86-93, 105-106, 108-110 and 115-118.

The following is an examiner's statement of reasons for allowance:

In light of applicant's arguments submitted on 6 April 2009 and the Declaration under 37 CFR 1.132 of Dr. Brigitte Assouline, upon consulting with TC1600 Quality Assurance Specialist Jean Witz, it has been found that Applicant has provided sufficient evidence that the prior art (US 5,328,988 by Namen et al., and US 5,714,141 by Ho et al.) do not inherently teach an IL-7 composition having the recited three disulfide bridges. Accordingly, the rejections under 35 U.S.C. 102(b) as being anticipated by Namen et al., or alternatively, by Ho et al., are withdrawn. Also, the obviousness rejection under 35 U.S.C. 103(a) as being unpatentable over Namen et al. or Ho et al., in view of US 5,223,408 (Goeddel et al.), and the obviousness rejection under 35 U.S.C. 103(a) as being unpatentable over Ho et al., in view of US 5,728,680 (Morozov et al.), are withdrawn. The claimed invention is free of prior art. The amendment to the claims was made to clarify the claimed invention. Claims 86-93, 105-106, 108-110 and 115-118 are cancelled without prejudice to Applicant's intention to pursue the subject matter therein in continuing applications in a telephonic response received on 11 June 2009.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiaozhen Xie whose telephone number is 571-272-5569. The examiner can normally be reached on M-F, 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary B. Nickol can be reached on 571-272-0835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Xiaozhen Xie, Ph. D.
June 11, 2009

/Gary B. Nickol /
Supervisory Patent Examiner, Art Unit 1646